

Western Screech-Owl

(*Megascops kennicottii*)

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THE WESTERN SCREECH-OWL (*Megascops kennicottii*) is a permanent resident and the largest of New Mexico's eight small owls. At an average 116 g (4.1 oz), it is 1.3 times more massive than the Whiskered Screech-Owl (*M. trichopsis*) but similar to the Eastern Screech-Owl (*M. asio*), the state's other two small owls with dark-streaked, white-flecked gray plumage resembling gray tree bark (see chapters 30 and 40). Westerns are about 10% larger north and east of the Mogollon Rim, where females are 18% more massive than males. This geographic race is *M. k. aikenii*. Southward in the state the subspecies *M. k. suttoni* is smaller and more coarsely marked, and its females are 13% larger than males. All females are slightly darker gray than males.

Western and Eastern Screech-Owls differ genetically (Proudfoot et al. 2007). Also, Westerns lack the Eastern's rufous color-morph and differ vocally, but the two occasionally mimic each other (Gehlbach 2003). Western and Eastern Screech-Owls were considered conspecific until the American Ornithologists' Union separated them in its 6th edition *Check-list of North American Birds* (AOU 1983). In the 44th supplement to the 7th edition (Banks et al. 2003), all New World relatives except the Flammulated Owl (*Otus flammeolus*) were removed from the genus *Otus* and placed in their original genus, *Megascops*.

In New Mexico generally, Western Screech-Owls measure 19–25 cm (7.5–10 in) from head to tail. Their iris (eye) is yellow, and like other screech-owls they have prominent gray facial disks, distinct ear tufts (feathers), broad rounded wings, and short rounded tail. When approached, roosting individuals enhance their cryptic appearance by sitting erect with raised ear tufts, eyes mostly closed, and wings and body feathers compressed against the body, all typical of the screech-owl “tree bark” pose. Juveniles have distinctive light and darker gray, barred breast plumage until their pre-basic molt, another screech-owl characteristic (FRG).

Like many other owls in which females are larger, both sexes sing (several closely spaced notes) and call (one or more widely spaced notes), females at a higher pitch than males. Males defend nest holes and advertise for mates with a bouncing-ball song of whistles more closely spaced toward the end. Double-trill songs used in pair communication are whistles, a short pause, then more whistles. Both sexes call with single notes such as hoots at potential danger, barks if agitated, and screeches if very upset. When begging food, females and nestlings give a several-note twitter, and nest-attending males periodically give a single “pew” contact call that may be answered by nesting females.

Singing is more frequent during the approach to



PHOTO 29.1

(top) Western Screech-Owl at Kofa National Wildlife Refuge in Arizona, 3 May 2008. The Western Screech-Owl is a small owl with yellow irises, prominent gray facial disks, distinct ear tufts (feathers), broad rounded wings, and a short rounded tail. Adults have gray to black bills except for the tip, which can be cream or yellow through apparent wear. This is in contrast to the closely related Eastern Screech-Owl (*Megascops asio*), which has a yellow to olive-yellow bill. Although the Western and Eastern Screech-Owls are also—and mainly—identified by call, they can mimic each other in areas where their distributions overlap. PHOTOGRAPH: © TOM KENNEDY.

PHOTO 29.2

(bottom) Western Screech-Owl trapped at HawkWatch International's Manzano Mountains study site, fall 2001. Note the bill, dark except at the tip.

PHOTOGRAPH: © JOHN P. DELONG.



a full moon, when neighboring pairs may chorus in response to a stranger's song or recording. Choruses were first noted in New Mexico (Bailey 1928), later in Arizona (Marshall 1964; Johnson et al. 1981), and currently in Texas, where their timing and function are being studied (S. Kennedy, pers. comm.). Chorusing may be related to aggregated nesting, which is not yet proven for this species. Western Screech-Owls are like other screech-owls in recognizing individual voices and sing defensively at intruding strangers but not at close neighbors (Lohr and Gehlbach, unpubl. data).

Distribution

In diversity and area of habitats occupied, the Western Screech-Owl is the most widespread small owl in western North America. It ranges from southeastern coastal Alaska and British Columbia, Canada, southward through all U.S. states between the Pacific coast lowlands and the Rocky Mountains, reaching the Mexico City region on the central Mexican Plateau (the most recent distribution map is in Proudfoot et al. 2007). Only extensive grassland and deserts lacking riparian habitat, lowland tropical forest, and high montane elevations are avoided.



PHOTO 29.3

(above) Western Screech-Owl, Abo National Monument, Torrance Co., May 1971. The Western Screech-Owl is a common owl in central New Mexico, occurring particularly in the Middle Rio Grande bosque and in wooded foothills on the eastern side of the Sandia and Manzano mountains. PHOTOGRAPH: © CALVIN SMITH.

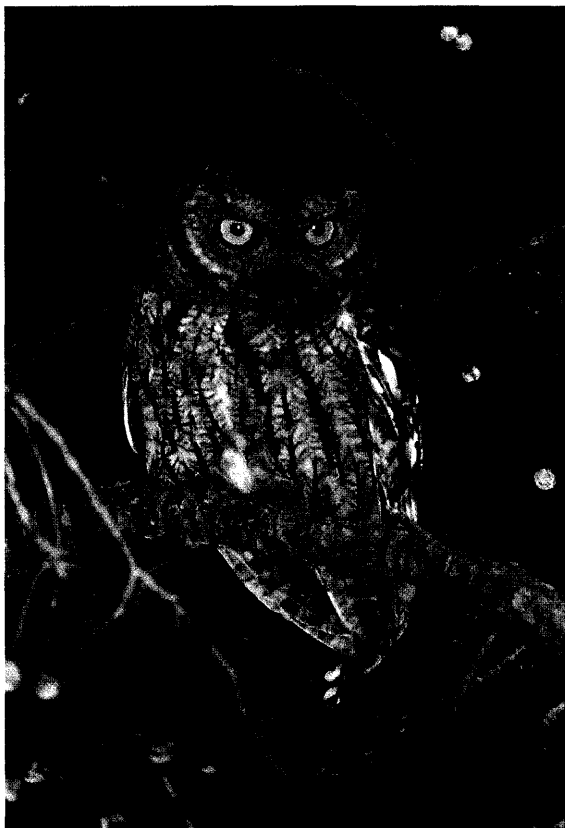


PHOTO 29.4

(left) Western Screech-Owl, photographed in the backyard of a private residence in Albuquerque, Bernalillo Co., December 2006. Based on distance, the owl in this photograph may have originated in the riparian cottonwood forest (bosque) along the Rio Grande, or in a nearby city park. PHOTOGRAPH:

© NANCY BACZEK.

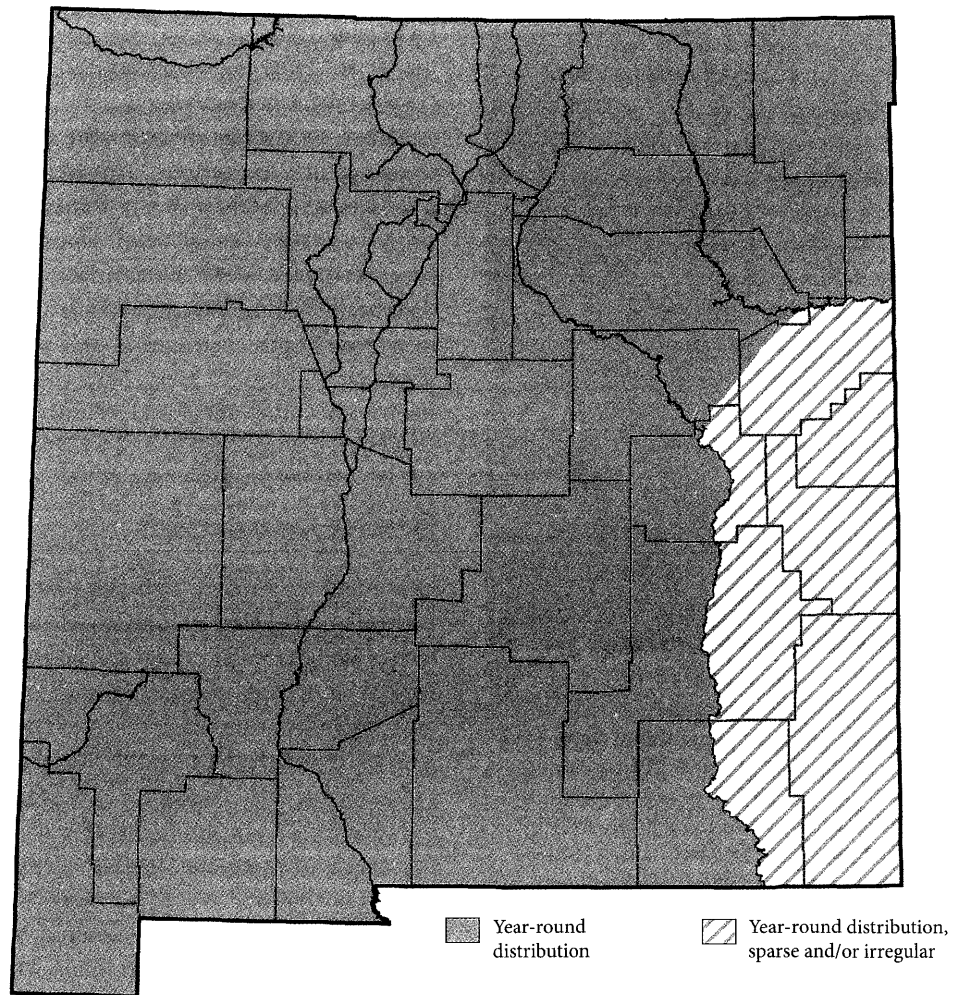


PHOTOS 29.5a and b

Possible Eastern x Western Screech-Owl hybrid, Black Mesa State Park, Cimarron Co., Oklahoma, 24 March 2007. The bird in the photograph has the black bill of a Western Screech-Owl while it also shows the rufous feather pattern and broad breast streaks of an Eastern Screech-Owl. Its vocalizations were those of a Western Screech-Owl (but the two species can mimic each other). Note that no DNA analysis was conducted to establish that this owl is a hybrid, a first for the state of Oklahoma. Hybrids have been documented in Colorado and are not impossible in New Mexico, where the Eastern Screech-Owl has now been reported.

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MAP 29.1

Western Screech-Owl distribution map

Western Screech-Owls nest over most of New Mexico, ranging in elevation from lowest riparian areas with tree cavities in desert and grassland mainly to about 2,360 m (7,800 ft) in the mountains, with one record at 2,700 m (8,800 ft; Bailey 1928). They are the most commonly encountered small owl overall in the state. For example, the species is common in Guadalupe Canyon, Hidalgo County; in Water Canyon in the Magdalena Mountains, Socorro County; and at Rattlesnake Springs, Eddy County. It is well known from the San Juan River Valley, San Juan County; the Lower and Middle Rio Grande Valley; (Las) Animas

Creek in Sierra County; and the Gila River Valley, Grant and Hidalgo counties (e.g., Hubbard 1971; Cartron et al. 2008). Only Curry, Lea, Mora, and Guadalupe counties lack verified records, surely due to insufficient study.

This familiar owl occurs in the western panhandle of Texas and throughout Trans-Pecos Texas, where it sometimes hybridizes with the Eastern Screech-Owl. Western Screech-Owls reach an eastern limit on the Edwards Plateau of central Texas but do not hybridize with Eastern Screeches there. Biogeographically, this distribution resembles those of other east-west pairs of closely related birds such as orioles, grosbeaks, and



PHOTO 29.6

(above) Western Screech-Owl in a nest box at Bitter Lake National Wildlife Refuge, March 2006. The nest box (in a line of elms [*Ulmus* sp.]) was one of several installed by Bitter Lake NWR staff for American Kestrels (*Falco sparverius*). The Western Screech-Owl vacated the nest box shortly after the photo was taken. The nest box was used instead by American Kestrels. The Western Screech-Owl is not known to nest at Bitter Lake NWR, where habitat is probably unsuitable to the species.

PHOTOGRAPH: © GORDON WARRICK.



titmice, which were probably separated during the last (Wisconsin) glacial period and have reconnected in the Great Plains region during the last 10,000 years (Dixon 1989; Gehlbach 2003).

Other coexisting Western and Eastern Screech-Owls are in southeastern Colorado, where hybridization occurs rarely, and in northern Mexico, where neither species is well studied. However, in all overlap areas the two show character displacement in that their beaks ("culmen measurements") are 8% different in average length compared to only 3% east and west of overlaps (Gehlbach 2003). Such character displacement is known in other birds but not in other owls.

Habitat Associations

New Mexico's Western Screech-Owls occupy a wide range of wooded habitats from low-elevation deciduous forests along lowland creeks and rivers through juniper-oak woodlands to mixed deciduous-evergreen forest in mountain canyons and coniferous forest (Bailey 1928; Ligon 1961; Hubbard 1978). They also nest in urban parks. During FRG's studies in New Mexico's Zuni and New Mexico-Texas' Guadalupe mountains, and also in Arizona's Chiricahua and Huachuca mountains, highest nests were 1,700 m (5,600 ft) but more numerous below 1,520 m (5,000 ft; contrary information credited to FRG is misstated in Cannings and Angell 2001). Postbreeding wanderers and dispersing juveniles were occasionally observed by FRG to about 2,200 m (7,200 ft).

Optimum habitat in New Mexico is riparian woodland and forest with mixtures of deciduous or deciduous plus evergreen trees along stream edges, and on their terraces and adjacent lower slopes. Hubbard (1971) lists cottonwoods, willows, hackberries, walnuts, box elders, sycamores, and other deciduous trees along the lower Gila River, where cottonwoods and desert willows (*Chilopsis linearis*) are known nest trees (SHS). In Cherry Creek Canyon at Pinos Altos,

PHOTO 29.7

(left) Western Screech-Owl, Las Animas Creek west of Caballo Reservoir, Sierra Co., 19 November 2004.

PHOTOGRAPH: © ADAM D'ONOFRIO.



PHOTOS 29.8a and b

(top left and right) Western Screech-Owl in a private residence's yard in Corrales, Sandoval Co., 12 October 2008. PHOTOGRAPHS: © JANET RUTH.



PHOTO 29.9

(left) Western Screech-Owl in a saltcedar (*Tamarix* sp.) in a yard in Santa Fe Co., 9 October 2007.

PHOTOGRAPH: © WARREN BERG.

Grant County, Western Screech-Owl habitat consisted of evergreen oaks, pines, and junipers mixed with the deciduous trees (FRG). At 1,520–1,700 m (5,000–5,600 ft) in Cave Creek Canyon, Arizona, the canopy was 65% evergreen and 35% deciduous, and Arizona Sycamores (*Platanus wrightii*) had the most nests. Eastern Cottonwoods (*Populus deltoides fremontii*) and Arizona Walnuts (*Juglans major*) were also used (FRG).

Western Screech-Owls are regular residents with Elf Owls (*Micrathene whitneyi*) in the Cliff and Red-rock areas and casual near Virden in New Mexico's Gila River Valley (Hubbard 1971); they are also regular residents along the San Francisco River around Glenwood (FRG). They nested near Whiskered Screech-Owls at 1,490 m (4,900 ft) in Clanton Canyon in the Peloncillo Mountains, but not higher, where Whiskered Screech-Owls were most numerous (Gehlbach 1993). A similar partial separation in higher and denser versus lower, more sparsely wooded habitat favored by Western Screech-Owls was studied in Cave Creek Canyon, Chiricahua Mountains, and Ramsey Canyon, Huachuca Mountains, in Arizona (FRG, unpubl. data) and is known in Sonora, Mexico (Russell and Monson 1998).

Western Screech-Owls belong to guilds of two to five small, insectivorous owls that nest close together as well as separately (chapters 30, 32). When nesting near Whiskered Screech, Elf, Flammulated, and Northern Pygmy (*Glaucidium gnoma*) owls above 1,520 m (5,000 ft) in Cave Creek Canyon, Western Screech-Owls were the least common species, averaging only 0.5–1.6 pairs/km², and were absent in branch canyons with dense forest. Below that elevation however, they averaged 4.5 pairs/km², second only to Elf Owls in abundance in open-canopy riparian forest dominated by cottonwoods and sycamores.

Life History

Nesting

Like other small arboreal owls, Western Screech-Owls defend tree-cavity nest sites in single-cavity territories or polyterritories, the latter defined as two or more vocally defended cavities and their immediate surroundings (see chapters 30, 32). Extra cavities are

used for roosts, food storage, replacement nests, and rare polygyny (two or more females mated with the same male; Gehlbach 2008). In Cave Creek Canyon, 58% of nests were in natural-damage cavities caused by storms, gnawing rodents, and rot, while the remaining 42% were in holes drilled by Northern Flickers (*Colaptes auratus*). New Mexico nests are also known in Northern Flicker holes (Ligon 1961).

This owl begins laying eggs earlier than other nonmigratory small owls in the same habitat, possibly because its preferred low-elevation, open-canopy habitat warms up more readily. Earliest dates are 13 March–6 April in Arizona and Texas (Wise-Gervais 2005; FRG, unpubl. data; S. Kennedy, pers. comm.). Nesting in New Mexico is similarly described as beginning in mid March by Ligon (1961), who mentions a nest with “nearly grown young” at Santa Fe on 15 May, although eggs have been found as late as the first week of June (Bailey 1928).

A nest cavity 30 cm (1 ft) deep and 3.6 m (11.8 ft) high in a dead cottonwood with four incubated eggs on 22 April was noted by J. S. Ligon in unpublished notes (J.-L. Cartron). Otherwise, clutch size is poorly documented in New Mexico, but Murray (1976) provides an average of four eggs for Western and Eastern Screech-Owls, which is true in Texas (FRG). Perhaps as in Eastern Screech-Owls, 28–34 (average 30) days are required for incubation (Gehlbach 2008). Typical of all owls studied by FRG, only females incubate, brood, and feed downy nestlings, while males are the food providers, but both parents hunt and feed feathered nestlings and fledglings.

Along New Mexico's Gila River, five fledged broods had four owlets each, all observed between 4 June and 1 July (SHS). Fledging dates averaged 2 May above 1,500 m (5,000 ft) in Cave Creek Canyon, which is two weeks earlier than any other small owl and a month earlier than the migratory Elf Owl. Comparative fledging dates over several consecutive years were not available for Western Screech-Owls at that site, but other guild members fledged progressively earlier by an average 0.7 days per year during 1995–2006, coincident with increasingly warmer temperatures and earlier abundance of insects (FRG, unpubl. data). One Western Screech-Owl banded as a fledgling in Cave Creek Canyon dispersed 600 km (370 mi) to the Davis



PHOTO 29.10

Nest box used by nesting Western Screech-Owls in a juniper (*Juniperus* sp.) tree in the foothills of the Ortiz Mountains, June 2008.

PHOTOGRAPH: © LAWRY SAGER.



PHOTO 29.11

Fledgling at Kofa National Wildlife Refuge, Arizona, 13 June 2007.

PHOTOGRAPH: © TOM KENNEDY.

Mountains, Texas, where its band was found in a nest box nine years later.

Although Western Screech-Owls are not known to aggregate for nesting, they may do so occasionally, and they do join nesting clusters (chapters 30, 32). Aggregations (single species) and clusters (multispecies) contain two or more nests with a no-nest boundary between them and nearest other groups as wide as or wider than the maximum distance among nests within the group (FRG, unpubl. data). Western Screech-Owls nested in 19% of Cave Creek Canyon's 81 studied clusters, mostly with Elf Owls and Whiskered Screech-Owls, and clustered nests were more often successful than single nests, presumably because of added vigilance and deterrence of predators (FRG, unpubl. data).

Diet and Foraging

Small owls are sit-and-wait hunters, and most species eat mostly arthropods while nesting (Ross 1969; Gehlbach 2008; FRG, unpubl. data). They are typically nocturnal except the Northern Pygmy-Owl (chapter 32). The Western Screech-Owl's diet is unstudied in New Mexico, but in Cave Creek Canyon it includes 83% large insects such as June bugs (*Phyllophaga* sp.) and cicadas (*Diceroprocta* sp.) plus scorpions. Small rodents like brush mice (*Peromyscus boyleyi*) add 12%, and diurnal spiny lizards (*Sceloporus jarrovi*, *S. scalaris*) that remain active on day-warmed rocks for a short period after dark comprise the remaining 5% (Duncan et al. 2003; FRG, unpubl. data).

Along the Gila River in 1999, a routine check of a Yellow-breasted Chat (*Icteria virens*) nest revealed four recently fledged Western Screech-Owls, crops bulging, dozing in and around the nest with an adult perched higher in the tree (SHS). Presumably, adults preyed on the nestling chats. Not only birds, but also bats, amphibians, crayfish, and fish are documented in the diet of Western Screech-Owls (Cannings and Angell 2001), very similar to Eastern Screech-Owls (Gehlbach 1995), including those in Texas (Gehlbach 2008).

Predation and Interspecific Interactions

Western Screech-Owls are sympatric with many of New Mexico's other raptors, but their nocturnal habits

and proclivity for tree cavities or dense foliage roosts, often adjacent to tree trunks, and their bark-mimicking plumage in the daytime may limit interactions except with larger nocturnal owls. Predation has not been documented in the state, but elsewhere Great Horned Owls (*Bubo virginianus*) may be a predator of this species. Other known predators include Spotted Owls (*Strix occidentalis*), raccoons (*Procyon lotor*), and snakes (Cannings and Angell 2001).

Although Western Screech-Owls and other owls discovered by diurnal birds during daylight often attract noisy flocks of mobbing songbirds, like most owls they tend to ignore the commotion, which, as with Eastern Screech-Owls, advertises the potential predator's location and threat but does not drive it away (Gehlbach and Leverett 1995). Westerns may compete with other cavity nesters in New Mexico as suggested by their exchanging nest cavities with American Kestrels (*Falco sparverius*) along the Gila River over several years (SHS).

Status and Management

Because of its small size, cryptic appearance, and nocturnal habits, the Western Screech-Owl has not experienced the persecution suffered by larger diurnal raptors. Nor has it been as greatly impacted by human development, including urban sprawl, given that it appears to be tolerant of general human activity and wooded habitats such as urban parks. However, it does not tolerate high-density residential urban areas (Rodríguez-Estrella and Careaga 2003). Among the most important threats in New Mexico are loss and degradation of wooded riparian habitats (Ohmart 1994; Cartron et al. 2000, 2008) and direct mortality resulting from collisions with vehicles, windows, and power lines (Cannings and Angell 2001; Harness and Wilson 2001).

Repeated physical and auditory disturbance at and around nests has included off-road vehicles, chain saws, building construction, lights, flash photography, and voice recordings used by birders to lure small owls (FRG). At birded nests, some Western Screech-Owl eggs chilled because incubating females were lured away several times by repeated recordings (females



PHOTO 29.12

Western Screech-Owl in a yard in Santa Fe Co., 27 September 2007. Western Screech-Owls are frequently seen in parks and yards, where they show themselves tolerant of human activity.

PHOTOGRAPH: © WARREN BERG.

also defend nests). Interestingly, however, a survey of 227 recreationists at random in Cave Creek Canyon showed that 90% were birders who indicated that they were less interested in seeing Western Screech-Owls than any of the four other small owls that also occurred there (FRG, unpubl. data).

The senior author has repeatedly experienced the need for education about using nonconsumable wildlife resources without damaging them. He suggests that land management agencies must be attentive to this need with area-specific exhibits, appropriate signage, and naturalist-interpretive guidance. Ecologically based nature education should begin in elementary school and continue at all grade levels. The principle of nature's irreplaceable goods and services and their local economic benefits includes nonconsumptive forms of outdoor recreation.

We do not know whether populations of Western Screech-Owls are stable, increasing, or decreasing in New Mexico, but simple management efforts such as saving snags are beneficial as shown in a four-year post-fire study at a U.S. Forest Service campground in California, where the species increased 3.5-fold after

a fire (Elliot 1985). Like most small owls, Western Screech-Owls are poorly sampled by standard avian survey methods (Johnson et al. 1981). However, given the broad range of habitats occupied, their use of nest boxes, and their diverse diet, it seems likely that Western Screech-Owls will be one of New Mexico's most widespread and abundant small raptors well into the future.

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